

IN THE DRAWINGS

The attached sheet of drawings includes changes to FIG. 1. This sheet, which includes FIG. 1, replaces the original sheet including FIG. 1.

Attachment: Replacement Sheet (1)

REMARKS/ARGUMENTS

Favorable reconsideration of this Application, as presently amended and in light of the following discussion, is respectfully requested.

This Amendment is in response to the Office Action mailed on August 4, 2005. Claims 1 and 3-19 are pending in the Application and Claims 1-8 stand rejected. Claims 1, 3, and 8 are amended, Claim 2 is cancelled without prejudice or disclaimer, and new Claims 9-19 are added by the present Amendment.

Summarizing the outstanding Office Action, Applicants' drawings were objected to under 37 C.F.R. § 1.121(d); Claims 1-4 and 8 were rejected under 35 U.S.C. § 102(b) as being anticipated by Nied (U.S. Patent No. 4,602,743); and Claims 5-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nied.

Applicants thank Examiner Faye Francis for the courtesy of an interview extended to Applicants' representative on September 7, 2005. During the interview, amendments to the claims as herein presented were proposed, and arguments as hereinafter developed were presented. An agreement with respect to the claims was not reached; however, Examiner Francis indicated on the interview summary (form PTOL-413) that "discussed were the rejections under 35 USC § 102 and 103. It appears that a method claim reciting the limitations of either claim 2 or 3 would overcome the cited prior art references. Applicant will consider amendments to the claims. However, no final decision will be made regarding patentability of any claims until a response to the office action is filed. A formal amendment will follow."

Method Claim 8 is amended to recite the subject matter of Claim 2 and a new method Claim 14 is submitted reciting, among other features, the subject matter of Claim 3. Dependent Claims 9-13 and 15-19 are dependent on either Claim 8 or new Claim 14 and recite subject matter claimed in the originally filed claims. Therefore, new Claims 9-19 and

the amendments to Claim 8 are not believed to raise a question of new matter.¹ Based at least on the results of the personal interview, Applicants believe that Claim 8 and new Claims 9-19 are in condition for allowance. In addition, the above-summarized rejection of Claim 8 is now moot.

As to the objection to Applicants' figures, Applicants have submitted a replacement for FIG. 1, correcting the informality noted by the Examiner and respectfully request reconsideration of the objection thereto. Applicants respectfully submit that no new matter has been added to the above-referenced application by the replacement drawings submitted.

As to the anticipation and obviousness rejections of Claims 1-4 and 8 and Claims 5-7, respectively, Applicants respectfully submit that presently amended Claim 1 is neither anticipated nor rendered obvious by Nied because each and every element as set forth in that claim is not found, either expressly or inherently described, in the cited reference. In an anticipation rejection, the identical invention must be shown in as complete detail as is contained in the claim.²

Claim 1 has been amended with the features previously recited in Claim 2, which has been canceled. According to a feature of the invention as set forth in presently amended Claim 1, a fluidized bed pulverizing and classifying apparatus is recited, comprising, among other features, a vessel (having a pulverizing section with a pulverizing nozzle, a classifying section located over the pulverizing section, and a fluidized bed), and an air supplier configured to supply secondary air. In this device, a flow rate Q_2 of the secondary air and a flow rate Q_1 of the compressed air of the pulverizing nozzle satisfy the following relationship:

¹ See MPEP 2163.06 stating that "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

² See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

$$\frac{Q_1}{20} \leq Q_2 \leq \frac{3Q_1}{20}.$$

As disclosed in the Specification, the inventors have discovered that when Q_2 is less than $Q_1/20$, the inside of the fluidized vessel is not sufficiently fluidized, resulting in excessive pulverization and contamination of the final product with an excessive amount of fine particles. When Q_2 is greater than $3Q_1/20$, coarse particles are elevated to the classifying section, resulting in the mixing of coarse particles with the final product. They have also discovered that when the pressure P inside of the pulverizing apparatus is greater than 3 kPa, the back-pressure of the material to be pulverized increases and the pulverization collision speed decreases, resulting in the deterioration of the pulverizing capacity of the fluidized bed pulverizing and classifying apparatus. Further, the updraft in the fluidized vessel decreases and the materials to be pulverized are not sufficiently fed to the classifying section, resulting in the deterioration of classifying capacity. When P is less than -10 kPa, a gas-particle ratio around the sprays of compressed air from the pulverizing nozzles decreases, resulting in the deterioration of the pulverizing capacity. Further, the amount of material fed to the classifying section increases and coarse particles are mixed therein, also resulting in the deterioration of the classifying capacity.³

Nied relates to jet mills and, in particular, to fluidized bed jet mills.⁴ Nied discloses that "it has been found that the optimal grinding effect of the arrangement pursuant to the invention is obtained when the point of intersection of the nozzles axes is positioned at a distance from the plane of the nozzle orifices such that, mathematically, ***the vectorial sum (i.e., that obtained by geometric addition) of the impulse flows of all nozzles becomes zero.*** In this connection, impulse flow of a nozzle is to be understood as the product of jet velocity

³ Specification, page 9, line 8-page 10, line 23.

⁴ Nied, col. 1, lines 5-10.

at the nozzle orifice and the quantity of gas passing through it per unit time; impulse flow corresponds to the impulse referred to the unit of time, of the gas jet emerging from the nozzle and has the dimension of a force.”⁵ Nied also discloses that “[i]t is also advantageous if all nozzles are designed alike and have like dimensions.”⁶ As such, in the preferred embodiment, “the jet speed at the nozzle orifice and quantity of gas passing through per unit of time are alike for all nozzles 5 and 6.”⁷

Based on the above-noted summary of Nied, Applicants respectfully submit that that reference cannot support a *prima facie* case of anticipation of the invention recited in Claim 1. Nied is silent with regards to any relationship between flow rates. Nied teaches that the vectorial sum of the impulse flows of all nozzles be zero, and not that one flow rate be related to another, particularly as to satisfy the mathematical relationship recited in Claim 1. In fact, in the embodiment disclosed, Nied teaches that the quantity of gas passing through per unit of time is the same for nozzles 5 and 6.

The outstanding Office Action asserts that “the apparatus disclosed by Nied is capable of performing the intended use, that is, the specific flow rate and supplying pressure relationship.” Applicants respectfully disagree.

As explained, Nied teaches that the vectorial sum of the impulse flows of all nozzles be zero. In the case when the nozzles are geometrically similar to each other, that requirement results in the use of equal flow rates through nozzles 5 and 6 and not the different flow rates recited in Claim 1.

Secondly, the Office is respectfully reminded that “it would be mere happenstance if any structure made according to [Nied] met the limitations of the claims. An accidental or

⁵ Nied, col. 1, line 60 – col. 2, line 4, emphasis added.

⁶ Nied, col. 1, line 60 – col. 2, line 14.

⁷ Nied, col. 2, lines 27-54.

unwitting duplication of an invention cannot constitute an anticipation.”⁸ As such, the position that Nied by a mere happenstance would be capable of performing the intended use would simply be an accidental or unwitting duplication of Applicants’ invention, which would actually be against what is taught in Nied as just explained.

Claims 5-7 depend from Claim 1. As such, based on the above-noted remarks, Applicants respectfully submit that Nied cannot render those claims obvious because it does not teach or disclose all of the features recited in Claim 1 as just explained.

Based at least on the foregoing, Applicants respectfully submit that Claim 1 is neither anticipated nor rendered obvious by Nied. Claims 3-7 should be allowed, among other reasons, as depending either directly or indirectly from Claim 1, which should be allowed as just explained. In addition, Claims 3-7 are further considered allowable as they recite other features of the invention that are not disclosed, taught, or suggested by the applied reference when those features are considered within the context of the subject matter recited in independent Claim 1. Therefore, Applicants respectfully request that the anticipation of Claims 1-4 under 35 U.S.C. §102(b) and the obviousness rejection of Claims 5-7 be withdrawn.

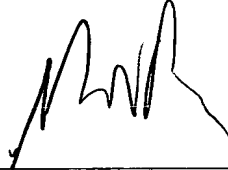
Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1 and 3-19 is earnestly solicited.

⁸ *Tilghman v. Proctor*, 102 U.S. 707 (1880); *Eibel Process Co. v. Minnesota and Ontario Paper Co.*, 261 U.S. 45 (1923).

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representatives at the below listed telephone number.

Respectfully submitted,

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Docket No.: 247065US3



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION: Mutsumi TAKAHASHI, et al.

SERIAL NO.: 10/761,285

GAU: 3725

FILED: January 22, 2004

EXAMINER: FRANCIS, FAYE

FOR: FLUIDIZED BED PULVERIZING AND CLASSIFYING APPARATUS, AND METHOD OF PULVERIZING AND CLASSIFYING SOLIDS

LETTER SUBMITTING REPLACEMENT DRAWING SHEET(S)

COMMISSIONER FOR PATENTS
Alexandria, VA 22313

SIR:

Responsive to the below indicated communication, the following drawing sheets are submitted herewith:

☒ 1 Replacement Drawing Sheet

☐ _____ New Drawing Sheets

☒ Official Action dated August 4, 2005.

☐ Notice of Allowance/Issue Fee dated _____

☐ Other dated _____

The changes and/or modifications made include the following:

Fig. 1 has been designated by a legend "PRIOR ART" as requested by the Examiner.

Respectfully Submitted,

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